

T-13-4-1 – “Long-term Population Stability of the Louisiana Pearlshell (*Margaritifera hembeli*) in the Kisatchie National Forest”

Abstract: During spring and early summer 2003, [the principle investigators (PI)] re-surveyed populations of *Margaritifera hembeli* in Beaver, James Branch, Jordan, and Loving creeks first studied by Johnson and Brown (1998) to determine current population densities and size distributions. [The PIs] found that the mean shell length of the mussels differed among streams. Mussels in Loving creek were significantly smaller than those found in any of the other four creeks (one-way ANOVA, $p < 0.0001$).

Compared to Johnson and Brown (1998), and Shively (1998, 1999 and 2001), [data] gathered from quadrat sampling showed a decrease in density across all four stream sites. However, due to the aggregated distribution of these animals, [it was] concluded that quadrat sampling was not the best strategy for estimating density along the length of the streams. [It was] found that by counting the organisms in each 50-m segment of stream, the estimates were more representative of the natural population.

Three of the four streams showed evidence of disturbance either by drought, erosion, or beavers. Jordan appears to be in the best condition. Beaver and Loving were in moderate condition due to natural disturbance and James Branch appeared to be seriously impacted by drought.

[The PIs] argue that since Johnson and Brown’s 1998 survey and during the period of the recent surveys conducted by Stephen Shively, the populations of *M. hembeli* in Beaver, James Branch, and Loving creeks have been impacted to some extent by erosion, beaver activity, and drought conditions in the Kisatchie National Forest. Because of the large percentage of disturbed streams in [the] study (25 – 75 % showed some degree of population loss), [the PIs] recommend that a larger number of streams containing *M. hembeli* be sampled every five years. (**Abstract taken from:** “Long-term Population Stability of the Louisiana Pearlshell (*Margaritifera hembeli*) in the Kisatchie National Forest”, Final Report (June 2003); Bambarger, R., and K.M. Brown; LSU Department of Biological Sciences, Baton Rouge, LA; 20 pp., incl. figures and tables)

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